

Tevatron Beam Position Monitor Upgrade Specifications

Beam Current Specifications

Peak Current vs Bunch Intensity

Spectral Component

RF Hardware

BPM Plates Specification

Physical Dimensions

Coupling Equations (Impedance)

Linear

Non-linear

Directivity

Bandpass Filters

Bandwidth

Reflection Coefficients

Justification

Error on 1st turn orbits

Turn-by-turn measurements

Cabling

RG-8 Specifications

Reflection Coefficients

Connectors

Filters

Digitizer input

Digitizer

Sampling Rate

Input Range

Number of Bits

Non-linearity

Integral

Differential

Effective Number of Bits (ENOB)

Justification

Dynamic Range

Resolution

Linearity

Gain Accuracy

Digital Downconverter

Sampling Rate

Number of Input Bits

NCO Frequency Granularity

Justification

Compatibility with Digitizer

Changes in Center Frequency

Digital Filters

Clock Rate

Interpolation

Dissemination

Bandwidth

Modes

Closed Orbit

Turn-by-Turn

First turn

Mode Switching

Delay

Repeatability

Tracking with Mode Changes

Justification

Operating Scenarios

Resolution

Compatibility with Digital Downconverter

Compatibility with Proton/Pbar Cross Correlation

DSP

Bit Width

Calculations

Position & Amplitude

Calibration Corrections

Memory

Depth

Organization

Trigger Handling

Internal Timing

Local Control

Backplane Communication

Justification

Operating Scenarios

Compatibility with Digital Filters

Timing Requirements

Calibration Requirements

Compatibility with Local Bus

Crate & Local Control

Local Bus

Processor

BLM Control

Cabling

Mechanical Dimensions

Power Requirements

Timing & Synchronization

Digitizer Clock Reference

Time Stamp Synchronization

TCLK

BSYNC Clock

State Transitions

Calibration

Attenuation Mismatch (A & B signals)

Delay Mismatch (A & B signals)

Delay Mismatch (protons & pbars)

Directivity (protons & pbars)

Linearity

Amplitude Mismatch (different pickups)

Delay Mismatch (different pickups)

Diagnostics

Hardware

Beam-based

Frontend

Initialization of System

Mode Control

MOOC

State Transitions

Acnet Data Acquisition Routines

Request Single Closed Orbit Measurement

Request Profile of Single Closed Orbit Measurements

Request Single Turn Measurement

Request Multi-turn Measurement

Request Turn-by-turn Measurement

Acnet Control & Diagnostics Routines

Perform Hardware Diagnostics Test

Perform Beam Diagnostics Test

Perform Calibration Measurement

User Application Programs

BPM/BLM Plots (T39)

BLM Data and Control (T40)

BLM Time Plot (T44)

Tev Orbit Program (C50)

BPM/BLM Test and Diagnostics

Archive Routines

CYBase

Local Storage

SDA

Data Analysis Routines

FFT Routines

Lattice Parameter Calculations

Cusp Finding